

REMARKS

Thorough examination and careful review of the application by the Examiner is noted and appreciated.

Claims 1-12 are pending in the application. Claims 1-12 stand rejected.

The Applicants hereby affirm an election made during a telephone conversation with the Examiner on 11/7/2002 of a provision election made to prosecute the invention of Group I, claims 1-12. The non-elected claims 13-20 are hereby cancelled and withdrawn from further consideration by the Examiner.

New independent claim 21 is added which is a combination of the existing independent claim 1 and dependent claim 4. New dependent claims 22-28 are added which are the same as existing claims 2-3, 5, 6, 9-10 and 12, except that these dependent claims depend on the newly amended independent claim 21.

Claim Rejections Under 35 USC §102

Claim 1 is rejected under 35 USC §102(e) as being anticipated by Deguchi '091. It is contended that Deguchi discloses a field emission display panel including the feature that the width of the nanotube layer is less than $3/4$ the width of the first electrically conductive material, as shown in Deguchi's Fig. 1A.

The rejection of claim 1 under 35 USC §102(e) based on Deguchi is respectfully traversed.

Deguchi discloses an electron emission element and image output device including a substrate, a cathode formed on the substrate, an anode opposed to the cathode, an electron emission member disposed on the cathode, and a control electrode disposed between the cathode and the anode. (See Abstract) The electron emission member 14, as specifically described at col. 5, line 36, as:

"The electron emission member 14 is **formed as a circular thin film** for example, as shown in Figs. 1A and 1B. Alternatively, the electron

emission member 14 may be formed into a cone-shape."

Furthermore, at col. 6, lines 13-15:

"When being made of diamond having a thin film shape, the electron emission member 14 can be formed in any shape at any position by photolithography or the like."

The Applicants respectfully submit that the disclosure of Deguchi does not teach the present invention key element as recited in independent claim 1:

"... comprises a layer of a first electrically conductive material having a first width and a layer of nanotube emitters having a second width on top, said second width being less than 3/4 of said first width;"

Figure 1A of Deguchi shows the electron emission member 14 on top of the cathode 12 for illustrative purposes only, which does not specifically teach "second width being less than $3/4$ of said first width". Moreover, the disclosure at col. 6, line 13 teaches the opposite of the present invention independent claim 1, i.e. in that the electron emission member 14 can be formed in any shape at any position. There is no teaching in Deguchi that the second width (of the nanotube emitter) should be less than $3/4$ of the first width (of the cathode).

The rejection of claim 1 under 35 USC §102(e) based on Deguchi is respectfully traversed. A reconsideration for allowance of claim 1 is respectfully requested of the Examiner.

Claims 2-3, 5, 7-9 and 12 are rejected under 35 USC §102(e) as being anticipated by Deguchi '091.

The rejection of claims 2-3, 5, 7-9 and 12 under 35 USC §102(e) based on Deguchi is respectfully traversed.

Dependent claims 2-3, 5, 7-9 and 12 depend on independent claim 1, which the Applicants have clearly shown is not anticipated by Deguchi. By the same reasoning, the Applicants respectfully submit that dependent claims 1-3, 5, 7-9 and 12 are likewise not anticipated by Deguchi '091. Particularly, dependent claim 2, which further recites that the nanotube layer having a width less than $3/4$ and more than $1/4$ the width of the cathode layer, is not taught, disclosed or suggested by Deguchi in Fig. 1A.

The rejection of claim 2-3, 5, 7-9 and 12 under 35 USC §102(e) based on Deguchi is respectfully traversed. A reconsideration for allowance of these claims is respectfully requested of the Examiner.

Claim Rejections Under 35 USC §103

Claim 4 is rejected under 35 USC §103(a) as being unpatentable over Deguchi '091 in view of Hidler '502. It is contended that while Deguchi fails to show that the first and second electrically insulating plates are formed of a ceramic material that is substantially transparent, such is shown by Hidler.

The rejection of claim 4 under 35 USC §103(a) based on Deguchi and Hidler is respectfully traversed.

Dependent claim 4 has been cancelled and withdrawn from further consideration by the Examiner.

Independent claim 21 has been added which is a combination of independent claim 1 and claim 4. The Applicants respectfully submit that the newly added independent claim 21 is not rendered unpatentable based on Deguchi and Hidler.

Hidler '502 discloses an electroluminescent display device (ELD) which uses sub-pixel electrodes connecting vias in insulating layers. As disclosed by Hidler, col. 2, lines 51-55:

"The light emitting layer may be a thin film and it may consist of organic electroluminescent materials. The substrate may be an opaque or transparent material selected from the group of silicon, ceramics, insulated metals and glass."

The Applicants respectfully submit that the ELD is a completely different device utilizing completely different principles and structures than the present invention device of FED. For instance, there is no electron emitter required in an ELD. The principle of operation of an ELD is completely different than that in a FED of the present invention. As such, the Applicants respectfully submit that there can be no motivation to combine the two references, which represent two completely different technological areas, in reaching the present invention independent claim 21.

A reconsideration for allowance of the present invention newly added claims 21-28 is respectfully requested of the Examiner.

Claim 6 is rejected under 35 USC §103(a) as being unpatentable over Deguchi '091 in view of Moore '433. It is contended that while Deguchi fails to teach that the layer of a first electrically conductive material is a silver paste, such is disclosed by Moore.

The rejection of claim 6 under 35 USC §103(a) based on Deguchi and Moore is respectfully traversed.

U.S.S.N. 09/240,460

The Applicants have clearly shown that Deguchi does not teach the present invention independent claim 1, which requires a width of the nanotube emitters to be less than $3/4$ of the width of the cathode, which is not taught or disclosed by Deguchi.

Claim 6 depends on independent claim 1, and as such, is likewise not taught or disclosed by Deguchi and Moore.

A reconsideration for allowance of claim 6 is respectfully requested of the Examiner.

Claim 10 is rejected under 35 USC §103(a) as being unpatentable over Deguchi '091 in view of Zettl '637.

Claim 11 is rejected under 35 USC §103(a) as being unpatentable over Deguchi '091 in view of Kiyomiya '823.

The rejection of claims 10 and 11 under 35 USC §103(a) based on Deguchi, Zettl and Kiyomiya is respectfully traversed.

Similar to the reasoning present above regarding the Deguchi reference, which the Applicants have clearly shown does not teach the present invention independent claim 1 which requires a width of the nanotube emitters to be less than $3/4$ of the width of the cathode, the Applicants respectfully submit that the Zettl reference and the Kiyomiya reference do not add any additional weight in a §103(a) rejection based on Deguchi.

A reconsideration for allowance of claims 10 and 11 is respectfully requested of the Examiner.

Based on the foregoing, the Applicants respectfully submit that all of the pending claims, i.e. claims 1-3 and 5-12 and 21-28, are now in condition for allowance. Such favorable action by the Examiner at an early date is respectfully solicited.


Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version With Markings To Show Changes Made".

U.S.S.N. 09/240,460

In the event that the present invention is not in a condition for allowance for any other reasons, the Examiner is respectfully invited to call the Applicants' representative at his Bloomfield Hills, Michigan office at (248) 540-4040 such that necessary action may be taken to place the application in a condition for allowance.

Respectfully submitted,

Tung & Associates

A handwritten signature in dark ink, appearing to be 'Randy W. Tung', is written over a horizontal line. To the right of the signature, there is a long, diagonal slash mark.

Randy W. Tung
Reg. No. 31,311
Telephone: (248) 540-4040

RWT\kd



VERSION WITH MARKINGS TO SHOW CHANGES MADE

In The Claims

Claims 4 and 13-20 have been cancelled without prejudice.

Please add new claims 21-28 as follows:

21. (NEW) A field emission display panel comprising:

a first electrically insulating plate;

a plurality of emitter stacks formed on said first electrically insulating plate, each of said emitter stacks being positioned parallel to a transverse direction of said first insulating plate and comprises a layer of a first electrically conductive material having a first width and a layer of nanotube emitter having a second width on top, said second width being less than $3/4$ of said first width;

a second electrically insulating plate positioned over and spaced-apart from said first electrically insulating plate having an inside surface facing said first plate, said first and second electrically insulating plates are formed of a ceramic material that is substantially transparent;

a layer of a second electrically conductive material on said inside surface of said second insulating plate;

a multiplicity of strips of fluorescent powder coating on said second electrically conductive material each for emitting a red, green or blue light upon activation by electrons emitted from said plurality of emitter stacks; and

a plurality of side panels joining peripheries of said first and second electrically insulating plates together forming a vacuum-tight cavity therein.

22. (NEW) A field emission display panel according to claim 21, wherein said second width of said layer of nanotube emitter being between about 1/4 and about 3/4 of said first width of said layer of first electrically conductive material.

23. (NEW) A field emission display panel according to claim 21, wherein said second electrically insulating plate further comprises a black matrix layer in-between said multiplicity of strips of fluorescent powder coating.

24. (NEW) A field emission display panel according to claim 21, wherein said layer of a first electrically conductive material is a cathode for said field emission display panel.

25. (NEW) A field emission display panel according to claim 21, wherein said layer of a first electrically conductive material is a silver paste.

26. (NEW) A field emission display panel according to claim 21, wherein said layer of nanotube emitter being formed of a mixture of nanometer dimensioned hollow tubes and a binder material.

27. (NEW) A field emission display panel according to claim 21, wherein said layer of nanotube emitter being formed of a mixture of nanometer dimensioned hollow tubes of carbon, diamond or diamond-like carbon and a polymeric-based binder.

28. (NEW) A field emission display panel according to claim 21, further comprising a second layer of said first electrically conductive material formed on top of a plurality of rib sections for functioning as a second anode.